Conservation of Energy

Energy can change from one form to another or from one type to another, but when it does, energy is conserved. The **Law of Conservation of Energy** says energy is never created or destroyed. It doesn't always seem that this is true. When a ball is tossed in the air it slows down until its speed reaches zero. This means the kinetic energy is zero. It seems as if the ball lost energy as it slowed down. But the speed reaches zero at he highest point where the potential energy is greatest. We can tell that the ball still has energy, because when the speed of the ball reaches zero, it begins to fall. Then, the speed keeps increasing until the ball reaches the lowest point. At the lowest point the potential energy is lowest, but the ball is moving fastest. This is when the kinetic energy is highest. Energy is not being lost. It is just changing type. As the ball moves up, kinetic energy is changed into potential energy. As the ball moves down, potential energy is changed into kinetic energy. The total energy of the ball (sum of potential and kinetic) is always the same, because energy is conserved. But wait!! Doesn't a bouncing ball keep bouncing lower and lower until it eventually stops? It does. Each time the ball hits the ground, some energy is absorbed by the ground. The ball doesn't have it, but the surroundings do. The total energy is still the same.

A teacher discovers conservation of energy

Answer the questions below based on the reading above and on your knowledge of physics.

1. What is the law of conservation of energy? _____

2. You toss a ball in the air.
   a. What happens to the speed of the ball as it rises? _____
   b. What happens to the kinetic energy of the ball as it rises? _____
   c. What happens to the potential energy of the ball as it rises? _____
   d. What happens to the total energy of the ball as it rises? _____

3. A bouncing ball eventually slows down and stops bouncing. Is energy conserved? Explain. _____

4. An arrow is shot into the bullseye of a target. What happens to its energy? _____